

Notice of Allowability

Application No.

10/519,451

Applicant(s)

NISHITA ET AL.

Examiner

Mohsen Ahmadi

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE filed on 07/19/2007.
2. ☒ The allowed claim(s) is/are 1, 3, 6 and 10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 08/23/2007
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Attorney Mary A. Montebello on 08/23/2007.

In the claims, Claim 7 is canceled.

Replace claim 1, with the following:

Claim 1 (Currently Amended): A method for oxidation of a surface of an object to be processed in a single processing container which can contain a plurality of objects to be processed, said method characterized by performing said oxidation wherein:

an oxidizing gas and H₂ gas are fed into said processing container, respectively, by separate gas feed locations, a distance between a region for accommodating the object to be processed in the processing container and each of said gas feed locations being 100 mm or more;

active hydroxyl species and active oxygen species are mainly used in a vacuum atmosphere;

a processing pressure is determined to be 133 Pa or below;

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a processing temperature is determined to be 400°C or above; and

H₂ concentration inside said processing container is within the range of from 5 to 33%;

further wherein a plurality of stack-like silicon-layer projections are formed on a surface of said object to be processed, and a silicon nitride film is formed on upper surfaces of said projections.

further wherein, prior to said oxidation processing, said nitride film is formed to have an extra thickness corresponding to a thickness of the surface of said nitride film to be oxidized.

Allowable Subject Matter

Claims 1,3,6 and 10 are allowed.

The following is an examiner's statement of reasons for allowance: With respect to claim 1, *inter alia*, an oxidizing gas and H₂ gas are fed into processing container, respectively, by separate gas feed locations, a distance between a region for accommodating the object to be processed in the processing container and each of gas feed locations being 100 mm or more and H₂ concentration inside processing container is within the range of from 5 to 33% further wherein a plurality of stack-like silicon-layer projections are formed on a surface of object to be processed, and a silicon nitride film is formed on upper surfaces of projections, further wherein, prior to oxidation processing, nitride film is formed to have an extra thickness corresponding to a thickness of the surface of nitride film to be oxidized.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohsen Ahmadi whose telephone number is 1-571-272-5062. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 1-571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MA
08/23/2007

Mohsen Ahmadi


MICHAEL LEBENTRITT
SUPERVISORY PATENT EXAMINER